DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-013197
Date Inspected: 21-Apr-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 630
OSM Departure Time: 1500
Location: Job Site

CWI Name: Jim Cunningham, Steve McConnell, Warren Lucena **CWI Present:** ☑ Yes ☐ No

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS OBG 2W/3W-D, 3W/4W-D,

Summary of Items Observed:

The Quality Assurance (QA) Inspector, Rick Bettencourt was on site at the job site between the times noted above. The QA Inspector was on site to randomly observe the in process welding and inspection of the weld joints identified as 2E/3E-E2, 2W/3W-A, 1W/2W-D and the following observations were made:

2E/3E-E2

The QA Inspector randomly observed the American Bridge/Fluor (ABF) welders Rory Hogan and Jeremy Doleman setting up the flux cored arc welding (FCAW) machine at the above identified weld joint. The QA Inspector was informed by the QC Inspector Jim Cunningham the back gouge was previously accepted by the SE QC. The QA Inspector performed a random visual and dimensional inspection of the back gouged joint and noted it appeared to meet the general requirements of the contract documents. The QA Inspector randomly observed the ABF welders had previously started the induction heating blankets to ensure the minimum required preheat of 150°F was achieved prior to welding. The QA Inspector randomly verified utilizing a 150°F temperature indicating marker and noted the minimum required preheat had been achieved. The QA Inspector observed the ABF welder to be utilizing a semi automated FCAW track system for welding the above identified weld joint. The QA Inspector randomly observed the SE QC Inspector identified as Jim Cunningham set the FCAW machine to the parameters of the approved WPS. The QA Inspector randomly observed the FCAW parameters were 225 Amps, 23.8 Volts and a travel speed of 150mm/min. The QA Inspector randomly observed the ABF welder Jeremy Doleman begin the FCAW fill pass, once the semi automated track system reached a certain point the ABF welder Rory Hogan would observe the welding arc for the remainder of the weld. The QA Inspector noted the ABF welders did not complete the weld segment E2 on the QA Inspectors shift. The QA Inspector randomly observed and noted the above identified welders did not begin welding until 0945.

2W/3W-A

Upon the arrival of the QA Inspector it was randomly observed the above identified weld joint was previously completed. The QA Inspector randomly observed multiple areas that were marked for repair. The QA Inspector noted the weld had been previously ground flush with the base material. The QA Inspector noted all of the areas previously marked from repair had been repaired by welding and ground flush. The QA Inspector observed the magnetic particle testing (MT) and the visual testing (VT) had been completed and accepted by the Smith Emery Quality Control (QC) department. The QA Inspector performed random VT of the completed weld joint and noted, the completed weld appeared to be in general compliance with the contract requirements except for the areas of planar misalignment previously indicated in an Incident Report written by the QA Inspector. The QA Inspector randomly observed the SE QC Inspector Steve McConnell performing ultrasonic testing of the completed weld. The QA Inspector observed the QC Inspector performing the UT in weld segment A1.

The QA Inspector wrote and issued an Incident Report regarding ABF –RFI-002112R00. The QA Inspector noted the contract was aware of excessive gaps between the steel backing and the bevel of the complete joint penetration groove weld identified above. The contractor was aware of the gaps which were in excess of 7mm and 8mm, and elected to weld over them with prior engineering approval.

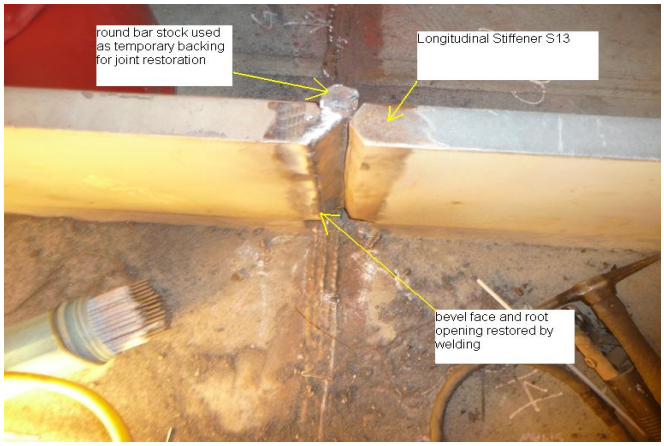
1W/2W-D Longitudinal Stiffeners

S13/S16/S17

The QA Inspector randomly observed the ABF welder Jordan Hazelaar performing shielded metal arc welding (SMAW) joint restoration or butter passes in the vertical position. The QA Inspector noted, due to the fit up of the 1W/2W orthotropic box girders, the root openings of the stiffeners were excessive. The QA Inspector noted 7mm maximum allowed root opening and most of the root openings were in excess of 13-14mm. The QA Inspector observed the contractor has elected to perform joint restoration to restore the root openings and bevel angles to the original joint configuration. The QA Inspector randomly observed the ABF welder had installed round bar stock in the double V-groove opposite the side where joint restoration is being performed (pictured below). The QA Inspector noted the round bar stock is place in the groove vertically and SMAW butter passes are perform on the opposite side. The QA Inspector noted once the weld joint has been restored to the original joint configuration, the round bar stock will be removed and welding can be performed as described in the approved WPS identified as ABF-WPS-D1.5-2010-C. The QA Inspector randomly observed the above identified welder was performing SMAW butter passes on all three of the above identified weld joints during the QA Inspectors shift. The QA Inspector randomly observed the ABF welder to be utilizing 1/8” E7018 low hydrogen electrodes with 135 Amps. The QA Inspector noted the SMAW parameters appeared to be in general compliance with the contract requirements.

S3

The QA Inspector randomly observed the ABF welder identified as Kenneth Chappell performing the same restoration process on the above identified stiffener plate. The QA Inspector noted the ABF welder was utilizing the same welding process as described above with 123 Amps. The QA Inspector noted no weld joint restoration was completed on the QA Inspectors shift.



Summary of Conversations:

In a conversation with the ABF Welding Quality Control Manager (WQCM) Jim Bowers and ABF Engineer John Callaghan, the QA Inspector informed the above identified persons of a weld repair at 1E/2E-C which needs UT. The QA Inspector asked WQCM if he was aware the scaffold had been removed and the weld joint had been painted from the external surface. The QA Inspector went on to explain one of the repaired areas which requires full volumetric UT cannot be tested 100% from the internal surface due to the stiffener plates. Mr. Callaghan informed the QA Inspector he was aware of the area which requires UT, Mr. Callaghan went on to inform the QA inspector a ladder can be used to reach the area and the paint will be removed at the time of the testing. The WQCM informed the QA Inspector there is more than one area that requires UT and they may not get done for some time to come. Mr. Callaghan went on to inform the QA Inspector ABF is aware off all areas which require further inspection and due to the critical path of the filed erection and welding, ABF must move foreword as scheduled. In addition Mr. Callaghan and the WQCM informed the QA Inspector the next lifts are bigger thus they have less field splices so ABF will get them done and move backward to perform the require inspections.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916)-813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Bettencourt,Rick	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer